2018 Massachusetts Arbor Day Poster Contest

My Community, My Trees

Contest Instructions and Activities

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2018 Massachusetts Arbor Day Poster Contest

Sponsored by
Massachusetts Department of Conservation and Recreation (DCR)
United States Forest Service (USFS)
Massachusetts Tree Wardens' and Foresters' Association (MTWFA)

Dear Educator,

You are invited to join other fifth-grade teachers across Massachusetts in the 2018 Arbor Day Poster Contest sponsored by the Department of Conservation and Recreation, the U.S. Forest Service, and the Massachusetts Tree Wardens' and Foresters' Association. This year's theme, "**My Community, My Trees"** is designed to increase students' understanding of trees and the role trees play in their community.

Trees are the dominant feature of all forest communities and can be found everywhere in our daily lives. They exist in parks, schoolyards, backyards, and along our roads. Whether we are in a city or small community, the urban and community forest is so ubiquitous that we often don't stop to think that we are actually part of a forest community and have a complex relationship with its ecosystem. Increasing students' understanding of their relationship with the urban forest and the trees around them is an important step toward appreciation of trees and of the environmental benefits they provide our communities.

For participation in the contest, the use of part or all of the activities in this guide is encouraged, but not mandatory. You may adapt, alter, or supplement these activities to meet the needs of your students. **Follow the contest rules as they appear on page 5**. The DCR can accept one poster per school. Home schooled or non-participating school students may submit their posters and enter the contest individually. Make sure your school's poster is signed with the student's first name and last initial and that the school winner report form (page 6) is completed and affixed to the back. Submit one entry per school to DCR.

The deadline for the Poster Contest is March 15, 2018.

Details are also available on the Internet. Visit our site at **http://www.mass.gov/eea/agencies/dcr/conservation/forestry-and-fire-control/branching-out-additional-programs.html** and view past state winners or download other great activities.

Julie Coop, the DCR Urban & Community Forester, will announce the state winners.

Contact Mollie Freilicher, **mollie.freilicher@state.ma.us** or 413-577-2966 for more information.

Activities Overview
My Community, My Trees

I. Discover what trees do for you and your community

Student Learning Objectives:

- Identify ways trees work to protect our natural resources.
- Estimate the economic value of urban trees to individuals and to a community.
- Describe several ways trees enhance human environments and natural ecosystems.
- Recognize appropriate planting sites for trees in the community.

Basic Activity (Page 5 of the Arbor Day Foundation curriculum booklet.)

- Students will explore the benefits of community trees

Extension Activities

- Tree-mendous Community Tree Contest (Page 16 of the Arbor Day Foundation booklet.)

II. Create a Poster:

Student Learning Objective:

- Students will create a poster that reflects their understanding of trees and the role trees play in their community.

Activity:

- Ask each student to create a poster around the theme **"My Community, My Trees"** that reflects their understanding of trees and the role trees play in their community

- Before they begin creating their posters, encourage students to think about trees in the community and how they contribute to their lives at home, at school, or in the community.

Contest Process

1. Create a Poster

Ask each student to create a poster around the theme "**My Community, My Trees**" that reflects their understanding of trees and the role trees play in their community.

Before they begin creating their posters, encourage students to think about trees in the community and how trees contribute to the students' lives at home, at school, or in the community.

Students should follow the poster contest rules by using the **checklist on page 5**.

2. Hold a School Poster Contest

You may select the winner or have a judging panel for the classroom and school contest. Judges could include other students, garden club members, tree board members, nursery personnel, arborists, the city forester, teachers, PTA members, or individuals with an interest in trees who are willing to volunteer some time. Home-schooled and non-participating school students may submit their posters individually.

3. Submit your Winning Poster to DCR

Submit your winning poster to DCR postmarked on or by **March 15, 2018**.
One poster per school, please.

4. Winners will be announced in late April

Poster Contest Prizes

First Place

- A tree is planted on the grounds of the winner's school (valued at $200)
- A certificate for art supplies and many other prizes
- and more…

Second Place, Third Place, and Honorable Mention Winners receive art supplies and many other prizes at a ceremony for all the winners.

Winner's teacher will also receive prizes that include educational materials that will support continued learning about forests and natural resource conservation.

Poster Contest Rules

Use this checklist to make certain all entries are eligible for judging.

2017 Arbor Day Poster Contest Winner,
Elm Street School, Walpole

Entries not meeting these guidelines may be disqualified.

1. All entries must be **original artwork** created by an individual student who is **currently in the fifth grade**. A student may enter the contest only once.
2. The student's **first name** and **last initial** must be **written** in the lower right-hand corner on the front of the poster. Do not include the last name on the front of the poster.
3. **CONTENT:** The poster must be related to the contest theme in some way. The theme "**My Community, My Trees" must be on the poster**. All words must be spelled correctly and be written clearly.
4. **ENTRY MEDIA**
   a) Entries may be done in marker, crayon, paint pens, watercolor, ink, acrylic, colored pencil, and/or tempera paint.
   b) Collages are not acceptable. (Do not glue anything on your poster.)
   c) Computer or photo-generated art and/or printing is not acceptable.
   d) Entries should not display the names of commercial products, companies, or organizations.
5. **SIZE:** Entries must be **no smaller than 8.5 x 11"** and **no larger than 14 x 18."** **Over-sized or under-sized submissions will not be accepted.**
6. **PAPER:** Entries must be done on paper that will allow for duplication, display, and framing.
7. Entries should not be matted, mounted, laminated, framed, or folded.
8. Submit your school's entry by **March 15, 2017** (postmark date) to DCR's Urban and Community Forestry Coordinator, Julie Coop, as described on the "**School Winner Report Form**" on the next page. Affix School Winner Report Form to the back of the school's winning poster.

School Winner Report Form

2018 Massachusetts Arbor Day Poster Contest

All information should be complete to expedite notification of winners. All artwork becomes the property of contest sponsors.

After selecting a winning poster for the school, copy and complete this form, attach to the back of the winning poster, and send to:
Julie Coop, DCR Urban & Community Forester
251 Causeway St. 9th floor,
Boston, MA 02114

Winner's Name _____

Winner's Home Address _____

City State ZIP_____

Winner's parent or guardian name _____

Teacher's Name _____

Teacher's e-mail address _____

School Name _____

School Address _____

City County State ZIP _____

School Phone (____) _____ - _____

Important—School Tally:

How many fifth-grade students participated in your poster contest? _____

How many teachers participated in your poster contest? _____

Celebrate Arbor Day

Friday, April 27, 2018

Since 1872, Arbor Day has been celebrated throughout the United States, and Arbor Day celebrations in schools have always played an important role. An Arbor Day celebration can be:

•**Simple** – Plant a tree in honor of your school poster contest winner or to recognize an outstanding volunteer.

•**Inspiring** – Have your graduating class plant a tree with the younger students. This is a tradition that honors the students leaving and gives new students something to enjoy throughout their years!

•**Entertaining** – Students compose poems or songs about trees or perform an Arbor Day play. (A sample play is available at **www.arborday.org/arbordayplay.**) This could be performed for fellow students, families, or senior citizens. Whatever you choose for your celebration, go outside and enjoy the trees and environment that surround you!

Get your students outside and celebrate Arbor Day!

*For ideas on incorporating Arbor Day into lesson planning, go to **http://arborday.org/arborday/classroom.cfm** or contact the **DCR Urban and Community Forestry Program**.*

Step 1 Discover What Trees Do For You and Your Community

BASIC ACTIVITY

Classroom Activity:

- **Discover the Benefits of Your Community Trees**

Objectives:

Students will be able to:

- **identify ways trees "work" to protect our natural resources.**
- **estimate the economic value of urban trees to individuals and to a community.**
- **describe several ways trees enhance human environments and natural ecosystems.**
- **recognize appropriate planting sites for urban trees in their community.**

Time Recommended:

- **One 60 minute class period**

Materials Needed:

- **Overhead transparency of page 12 (or one copy per child)**
- **Copy of worksheets on page 9-11, 13-15 (one per student)**
- **Pencil and paper**
- **Calculator (optional)**

National Science Standard Correlation:

Students will develop an understanding of:

- **populations and ecosystems**
- **populations, resources, and environments**
- **diversity and adaptations of organisms**

National Social Studies Standard Correlation:

Students will be able to:

- **describe how people create places that reflect cultural values and ideals as they build neighborhoods, parks, and the like.**

National Math Standard Correlation:

Students will be able to:

- **recognize and apply mathematics in contents outside of mathematics.**

Background Information:

In the early 1900s America was still a very rural nation where people had close ties to nature. Today nearly 80 percent of the United States population lives in urban/suburban areas. Often people think of forests only as distant, vast tree-covered tracts of land. They are unconscious of the urban forest that exists in their own cities and towns. Trees play a vital role in these urban environments.

Urban forests cover close to 70 million acres of land – an area larger than our National Forests. These community trees are working trees. They not only provide beauty, shade our streets and schoolyards, create habitat and food for wildlife; they also produce oxygen, improve air quality, muffle noise, moderate the temperature, filter runoff, protect the soil, and cool the air. More and more research is showing just how essential trees are to the quality of life and environmental health in our cities and towns.

Research shows that trees help reduce stress in the work place and speed recovery of hospital patients. Trees increase land values. Houses with trees often sell faster and for more money than those without trees. Commercial retail areas are more attractive to shoppers, apartments rent more quickly, tenants stay longer, and space in a wooded setting is more valuable to sell or rent.

Studies also show that young children benefit greatly from connecting with trees and nature. A connection with nature benefits children educationally, behaviorally, and developmentally. On-going research and field-testing confirms that regular connection with the natural world helps:

- Build children's visual-spatial skills.
- Improve children's ability to concentrate, including children with Attention Deficit Disorder (ADD).
- Enhance children's motor skills – such as coordination, balance, and agility.

Cities and towns benefit greatly from their urban trees. But trees within cities also have special challenges. There is not as much space for their roots to spread out and urban soils are often poor. Tall buildings can prevent trees from getting full amounts of sun. Pollution from cars, buses, and factories can affect the health of a tree and impact how well it grows. If the right tree is not planted in the right place, branches can grow and tangle in power lines creating a hazard tree. In spite of these challenges, many species of trees have adapted to urban life and grow well, providing numerous benefits to the people that live there.

It takes time, effort, and some funding to establish and maintain the urban forest, but recent studies of the urban forest have shown that city trees provide benefits to the community worth 2-3 times the cost of their planting and care. For many years trees were only valued for the wood products they could produce. Today, scientists have developed ways to measure the economic value of trees to the environment. In the following activity, students will have an opportunity to learn how trees impact the urban environment and calculate a rough estimate of a "working" tree's value. They will explore the environmental, economic and social benefits trees bring to our cities and towns.

Instructional Sequence:

Anticipatory Set:

Put up the overhead (or pass out handouts) of the World with Trees worksheet (page 12). Ask, *"Which of these two worlds would you rather live in?"* As students respond, ask why they chose as they did. Record responses on the board without comment.

Continue class discussion by asking, *"Why are trees important to our community?"* Building off of students' prior knowledge and information gathered from the handout/overhead, encourage students to generate a list of the products and contributions made by living trees. A possible list of responses is provided above.

"To exist as a nation, to prosper as a state, and to live as people, we must have trees."

Theodore Roosevelt

Step 1

Discover What Trees Do For You and Your Community - BASIC ACTIVITY

BENEFITS OF TREES

Activity:

Write the words TRUE and FALSE on the chalkboard. Tell students you are going to read some "Believe it or Not" statements about trees. They need to predict if each statement is true or false. If they believe the statement is true, they should stand. If they believe the statement is false, they should remain seated. To start, read ONLY the bolded statements #1-10 on pages 10 & 11 out loud.

Once you have gone through all 10 statements, tell students that all were true. Trees do all these amazing things for us and the environment we live in. Write "economic benefit," "environmental benefit," and "social benefit" on the board. Pass out the Benefits of Trees Handout (pages 10-11) and go through the statements again with students, this time incorporating the background information and comments following each statement.

Discussion:

As each benefit is discussed, ask students if they think that particular tree benefit results in more of an:

- **Environmental benefit** – Does it help the ecosystem/ environment in which people live?

- **Economic benefit** – Does it provide an opportunity for people or the community to save money by lowered costs or increased value?

- **Social benefit** – Does it improve the health or quality of life for individuals in some way?

After going through the handout, ask if planting trees in certain locations can have multiple benefits?

Tell students that even though research is proving the environmental, social, and economic benefits of trees, we're losing urban trees every day. In some cities, as many as four trees die or are removed for each new one added. And nationwide, each day 2,400 acres of rural land is absorbed for urban use and most of the trees on that land are not preserved. Surveys indicate that about 66-100 million spaces exist along our city streets where trees could be planted. This translates to the potential to absorb 33 million more tons of CO_2 every year and at the same time save consumers $4 billion in energy costs!

Be sure to explain that in a city, trees face numerous challenges like tight spaces, poor soils, and city pollution. It's always important to select the right tree for the right space, but in urban areas that is especially true if a tree is to grow and thrive.

Distribute the Vocabulary/Rubics (page 9) as well as the Community Neighborhood Worksheet and the Benefits of Your Community Trees Worksheets (pages 13-15).

NOTE: For the activity you may choose to have students work in pairs or on their own.

STUDENT DIRECTIONS: Tell students to imagine they each just received trees from the Arbor Day Foundation and are going to have an opportunity to plant them in a neighborhood that might be similar to the one where they live. Students are to draw in (plant) 8 trees in locations on the Community Neighborhood Worksheet where they feel the trees might be of the most value...to themselves, to the community – or both. Ask them to please number each tree that they plant, #1-8. Then, on the Benefits of Your Community Trees Worksheets, they should list where they planted each of their trees, and what environmental, economic, or social benefit each tree might provide in the location they selected. Remind them to make sure the number of the tree on the Community Neighborhood Worksheet corresponds to the number of the tree location described on the Benefits of Your Community Trees Worksheets.

Mention to students that it is always important to plant the right kind of tree in the right location, but for this activity they should imagine that they have already selected the appropriate tree species for each location they might select.

Give the students the following example:
If they planted Tree #1 by the stream it might have:

- an environmental benefit of holding the soil in place;
- an economic benefit of saving the city money by reduction of storm water runoff;
- and a social benefit of adding beauty to the area.

Then point out the "Tree A" example on the worksheets.

Then explain that they should list what benefit (social, economic or environmental) was the main reason that they selected the location for the tree that they did. When they do their tree location totals at the end of the Benefits of Your Community Trees Worksheet they may have 3 trees in one location and no trees in another – that is fine. Encourage students to refer to the Benefits of Trees Handout or the list on the board for a reminder of some of the different benefits trees provide in different locations.

Assessment - Pulling It All Together:

Allow students about 20 minutes to complete their worksheets. Then tell students they are going to jump 10 years into the future and try to determine the impact and the value of the trees they planted. Explain that they will be able to estimate the value of their community trees.

Refer students back to Benefit #10 on their Benefits of Trees Handout that says, "Nationally, the 60-plus million street trees have an average value of $525 per tree each year." Tell students to multiply the number of trees they planted times $525 (8 x $525 = $4200). That will give them a rough idea of the economic value from the environmental benefits provided by the trees they planted in their community. Then, on the board, calculate the total value of the trees planted by the whole class (# of students x $4200) to demonstrate the impact a group of people planting and caring for trees in a community can have on the economy of a community.

Tell students that if they planted 3 trees around the little house they could give themselves $10,000 for the increased value of their property. If the 3 trees planted around the little house were on the west and south side of the house they could give themselves an extra $50 in energy savings.

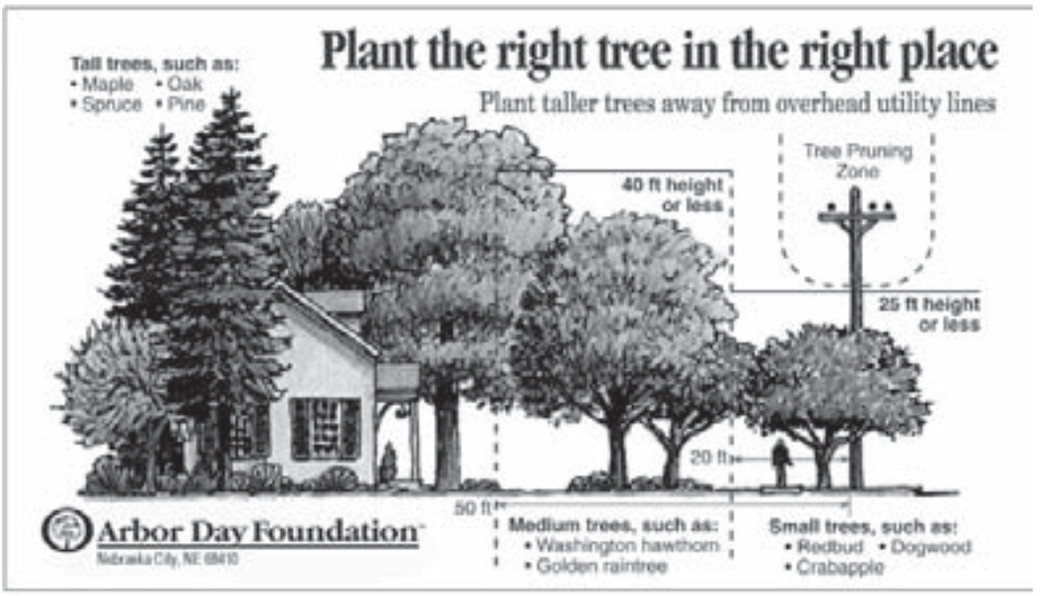
Stress to students that although part of this activity was to estimate the economic value of the trees they planted, the object is not to see who totaled up the greatest amount of money. The object of the activity is to help students recognize that trees provide benefits to our lives in many ways... some values are easily measured in terms of dollars and cents...some benefits (like the beauty of trees in a park) are subjective from one person to another and are more difficult to measure.

Post worksheets on the board so students can compare tree planting locations. Ask them to imagine each of their neighborhoods joined together, making up a large city. As time permits, allow students to share their community tree planting decisions and predict the social, environmental and economic impact of the trees they planted.

If you have an extra class period, you may wish to have students go online to research other values trees provide to communities.

Alternative Assessment:

GET OUTSIDE! If time permits, take students on a walk around the neighborhood and look at community trees. Predict what benefit each tree might provide in the location in which it's planted. Have students imagine they get to plant a single tree. Have them draw a picture or write a story about what benefits that tree might provide to them and to their community in the future.



Vocabulary and Assessment Rubric

Vocabulary

Buffer Strip – rows of trees or grasses planted along a stream or waterway to help prevent soil erosion and filter pollutants from running into the waterway.

Carbon Dioxide – A gas exhaled by animals and released from burning fossil fuels or in the process of decomposition. Trees clean the air by taking in carbon dioxide to use in photosynthesis. Often shown as CO_2.

Evergreen - A tree that has leaves all year round.

Fossil Fuels – Non-renewable fuels, like coal, oil, and natural gas, used to create energy. Once the supply of a fossil fuel has been depleted, it is gone forever.

Greenhouse gases – Gases, like carbon dioxide, that trap heat in the atmosphere.

Heat Island Effect – A term used when city temperatures run higher than those in nearby suburban and rural areas, primarily due to large areas of unshaded buildings and pavement.

Oxygen – Trees and other green plants produce oxygen, a gas needed by animals to survive. Often shown as O.

Runoff - The flow of water, from rain, snowmelt, or other sources that can carry soil or ground chemicals with it.

Shade Tree - A tree planted chiefly to provide shade from the sun. Shade trees are often deciduous trees that lose their leaves in the winter months.

Street Trees - Trees near the street, often located between the sidewalk and street, which are usually managed by the city or town.

Water Management Systems – Underground systems that that direct waste water and rain water through a system of sewers and drains.

Assessment Rubric: (To be used with the Benefits of Your Community Trees Worksheets) Pass out the rubric or put on the board at the start of the activity so students clearly understand the measured objectives.

1- 2 Points SEED LEVEL	3-5 points SEEDLING LEVEL	6-8 Points SAPLING LEVEL	9-10 points TREE LEVEL
• Five trees are drawn into the Community Neighborhood Worksheet. • A few planting locations are identified. • At least one benefit social, environmental, or economic is correctly identified for each tree drawn in.	• More than half of the trees are drawn into the Community Neighborhood Worksheet. • Over half the planting locations are identified. • At least two benefits social, environmental, or economic are correctly identified for each tree drawn in.	• All 10 trees are drawn neatly into the Community Neighborhood Worksheet. • Clear descriptions of the selected planting locations are shown. • At least one social, environmental, and economic benefit is correctly identified for each tree drawn in. • The tree totals are filled in on the Benefits of Your Community Trees Worksheet.	• All 10 trees are drawn neatly into the Community Neighborhood Worksheet. • Clear descriptions of the selected planting locations are shown. • Several social, environmental, and economic benefits are correctly identified for each tree drawn in. • The tree totals are filled in on the Benefits of Your Community Trees Worksheet.

Benefits of Trees Handout

Trees provide benefits to you and to your community in a variety of ways. Here are just a few examples. As you read through this list, consider if that tree benefit is more of an environmental, economic or social benefit.

1. Trees properly planted around a home can lower air conditioning AND heating costs. TRUE. Shade trees planted on the west and south sides of a home help shade and cool the air around the home during the summer reducing cost for air conditioning up to 30%. Evergreen trees placed on the north and west sides of a home or building block cold winter winds, reducing cost for heating by 20-30%. For example, if you have two identical houses with the only difference being one has carefully planted trees and the other does not, the house with the trees might only spend $70.00 a month for heating while the treeless home might have a $100.00 heating bill. That savings also means less burning of fossil fuels (non-renewable oil, coal or gas), which is good for the environment!

2. Trees help clean the air. TRUE. Trees improve the quality of the air we breathe by capturing dust and pollution particles from dirty city air that can affect our health. These particles cling to the leaves rather than float in the air. When it rains, the dust and particles are simply washed to the ground. Trees also remove greenhouse gases, like carbon dioxide, from the air and replace it with oxygen for us to breathe.

"The best friend on earth of man is the tree. When we use the tree respectfully and economically, we have one of the greatest resources on earth."

Frank Lloyd Wright

3. Healthy, mature trees around a house make the property more valuable. TRUE. Trees can add an average of 10–15% to a property's value. For example, a home or apartment building valued at $100,000 might sell for $110,000 ($10,000 more!) if it has trees around it. Tree planting is one of the best investments a person can make in their home. And in business areas, too. Business areas with trees are more attractive to shoppers.

4. Research studies suggest that housing areas with trees and other green plants have less violence and crime. TRUE. Living in an area with trees helps reduce stresses that can be associated with living in a big city. Less stress can ease tensions that sometimes lead to violence. Even a small number of trees and other green plants in an area were associated with lower crime rates. Apartment buildings that had lots of trees and plants had 52% fewer total crimes than apartment buildings with few or no trees or plants.

Benefits of Trees Handout

5. Hospital patients have been shown to recover from surgery more quickly and require less pain medication when their room had a window that provided a view of trees. TRUE. A study found that exposure to trees and nature lowered signs of stress... like heart rate, blood pressure, and muscle tension.

6. Trees help slow the force of rain water, which helps control storm runoff. This results in improved water quality, protected soil, and money savings. TRUE. The canopy (leafy top) of a tree softens and slows the force of raindrops. This gives water more time to absorb into the ground rather than eroding the soil and running off into storm sewers. Large water management systems are expensive. When trees are planted, smaller drainage systems can be used, saving money for a community and improving the environment.

7. Trees help prevent soil erosion, flooding, and landslides. TRUE. Tree roots hold soil in place and increase the ability of water to soak into the soil. Trees planted as buffer strips along streams help prevent flooding ...and even filter out chemicals that might wash into the stream.

8. The overall cooling effect of a healthy, mature tree is equivalent to ten room-sized air conditioners operating 20 hours a day. TRUE – Amazing! Water from a tree's leaves evaporates in the hot weather. The evaporated moisture cools the air around the tree. Since cool air is heavier than hot air, this cool air moves toward the ground making us feel cooler. Cities, with stretches of concrete streets, sidewalks and parking lots, are sometimes referred to as "heat islands" that are 5-9 degrees hotter than surrounding areas. Planting trees in cities helps alleviate the heat island effect – which saves both energy and money.

9. Getting outside and connecting with trees and nature has been shown to improve children's concentration and attention span. TRUE. When children spend time in nature-rich spaces their ability to concentrate improves. Even small areas of green space, with a few trees and plants, can make a difference for children.

10. The city of New York determined that for every dollar spent on trees the city receives $5.60 back in benefits the trees provide. TRUE. Think of all the things a tree does for the environment. If a city had to find other ways to handle storm water, clean the air, remove carbon dioxide generated by industry, reduce energy costs and beautify the community it would be very costly. All the things a tree does naturally are of great benefit to a city or town.

It has been estimated that the nation's 60 million street trees (city-owned trees between the sidewalk and street) have an average value of $525 per tree each year.

A World With Trees Worksheet

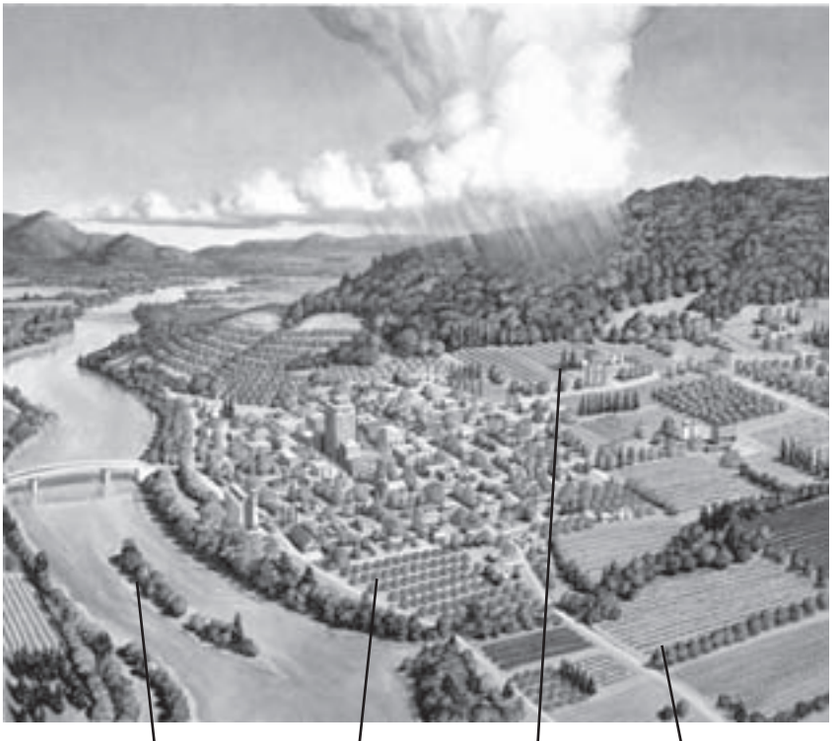
A World Without Trees

Silty, flood-prone rivers

Sun baked cities

Rapid runoff

Eroded farmland



A World With Trees

Natural streams

Shaded homes and streets

Forested slopes for recreation

Productive farmland

Benefits of Your Community Trees Worksheet

DIRECTIONS: You have been given 8 trees to plant in your community. On the ***Community Neighborhood Worksheet*** you should plant (draw in) 8 trees in areas where you feel they will provide the most benefit – to you, to the community, or both. Number each tree that you plant. Then, on this worksheet, list where you planted each of your trees and what environmental, economic, or social benefit each tree might provide in the location you selected. You may refer to the Benefits of Trees Handout for ideas.

Environmental benefit: Does it benefit the ecosystem/environment in which people live?

Economic benefit: Does it help people, or their town, save money by lowering expenses or increasing property value?

Social benefit: Does it improve the health or quality of life for individuals in some way?

EXAMPLE

Tree A Planting Location *On the North side of a house*

Why did you select this location for this tree? *The tree will help protect the house from cold winter winds*

What environmental, economic or social benefits might you get from this tree? *Saving money for heating would be an economic benefit. Using less energy for heating would be a benefit for the environment.*

Which benefit was most important to you when planting this particular tree? *Economic*

NAME _____

Tree 1 Planting Location _____

Why did you select this location for this tree? _____

What environmental, economic or social benefits might you get from this tree? _____

_____

Which benefit was most important to you when planting this particular tree? _____

Tree 2 Planting Location _____

Why did you select this location for this tree? _____

What environmental, economic or social benefits might you get from this tree? _____

_____

Which benefit was most important to you when planting this particular tree? _____

Tree 3 Planting Location _____

Why did you select this location for this tree? _____

What environmental, economic or social benefits might you get from this tree? _____

_____

Which benefit was most important to you when planting this particular tree? _____

Benefits of Your Community Trees Worksheet (cont.)

Tree 4 Planting Location _____

Why did you select this location for this tree? _____

What environmental, economic or social benefits might you get from this tree? _____

_____

Which benefit was most important to you when planting this particular tree? _____

Tree 5 Planting Location _____

Why did you select this location for this tree? _____

What environmental, economic or social benefits might you get from this tree? _____

_____

Which benefit was most important to you when planting this particular tree? _____

Tree 6 Planting Location _____

Why did you select this location for this tree? _____

What environmental, economic or social benefits might you get from this tree? _____

_____

Which benefit was most important to you when planting this particular tree? _____

Tree 7 Planting Location _____

Why did you select this location for this tree? _____

What environmental, economic or social benefits might you get from this tree? _____

_____

Which benefit was most important to you when planting this particular tree? _____

Tree 8 Planting Location _____

Why did you select this location for this tree? _____

What environmental, economic or social benefits might you get from this tree? _____

_____

Which benefit was most important to you when planting this particular tree? _____

Totals: How many trees did you plant in these locations?

#_____by the stream, #_____by the school, #_____in the park, #_____ by a home, # _____ next to the hospital,

#_____ shading a parking lot, # _____ by the apartments, #_____ by the business district, #_____in the vacant lot

Which benefit (environmental, economic or social) did you consider most often when selecting locations for planting your trees? _____

Community Neighborhood Worksheet

Step 1

Discover What Trees Do For You & Your Community

EXTENSION ACTIVITY

Classroom Activity:

- **Tree-mendous Community Tree Contest**

Objectives:

Students will be able to:

- **Learn techniques used by professionals to measure champion trees.**
- **Practice tree identification skills.**
- **Incorporate math skills.**
- **Recognize special trees in their community.**

Time Recommended:

- **Two 60 minute class periods**

Materials Needed:

- **Leaf samples**
- **Measuring tape**
- **Yardstick**
- **Tree pictures from old calendars or magazines or leaf samples from broadleaf and conifers**
- **Pencil and Paper**
- **Measuring Up a Champ Guidelines (page 20)**
- **Optional: Tree Identification Books**

National Science Education Standards Correlation:

Students will develop an understanding of:

- **organisms**
- **populations and ecosystems**
- **abilities necessary to do scientific inquiry**

Background Information:

Holding a community tree contest is a great way to get children interested in the trees in their neighborhoods. Students will learn some of the techniques used to measure champion trees and have the opportunity to identify some community trees.

"He who plants a tree loves others besides himself."

Thomas Fuller

Anticipatory Set:

Tell the students they are going to take part in a "Tree-mendous Trees" contest to find the biggest trees in town or in the neighborhood community. Ask students to think about the trees they see on their way to school. Where do they see the biggest trees...in yards, in parks, around the school? Record their comments. Then ask them how many different kinds of trees they see.

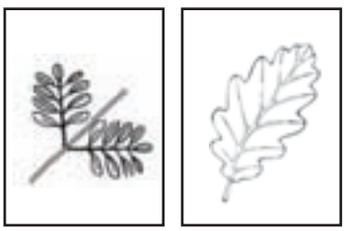
Help students understand that not all tree species grow to be the same height. Some trees, like the Redwoods in California, are giants towering more than 250 feet above the forest floor while a flowering dogwood may only reach a height of 35 feet. Both could be considered champions if they were the largest of their kind.

Explain to students that trees are divided into two main groups: conifer and broadleaf.

Conifers are trees with cones that have needle-like or scale-like (awl-shaped) leaves. Most conifers are evergreen since they do not lose all their leaves at once. Pines, firs, cedars and spruces are conifers.

Conifer

Broadleaf trees are trees with leaves that are thin and flat. Leaves are generally shed annually. They bear flowers, fruits or nuts. Oaks, maples, birches, and sycamores are just a few of the many different kinds of broadleaf trees. Broadleaf trees are sometimes referred to as deciduous trees. In warm climates, some broadleaf trees, like magnolias, do not shed all their leaves at the same time so they appear to remain evergreen.



Broadleaf

For visual learners, it is helpful to have a leaf sample from a conifer with needle-like leaves, a conifer with scale-like leaves, and a broadleaf tree. An inexpensive acrylic picture frame works well to keep brittle leaf samples protected and in place while still offering students a clear view of actual leaves.

Cut tree pictures from old calendars or magazines and have the students group them as conifer or broadleaf. Take a walk around the school grounds and have the students distinguish between conifer and broadleaf trees, then have the students calculate the ratio of conifers to broadleaf trees in the area visited.

Activity:

Ask students to think again about trees that they pass en route to school.

- Are there more conifers or broadleaf trees?
- Can any generalizations be made about where broadleaf and conifers are planted? (Often conifers are planted in parks or large, green spaces because of their pyramidal shape.)
- Where might you go to look for the biggest broadleaf trees? Where might you find the biggest conifers?

From the comments generated by the students, determine some of the best areas in the community in which to find large, mature trees.

Determine how large an area of the community is feasible to include in the contest. Is transportation available to your class or do you need to stay within walking distance of the school? Are there many sites in the community with large trees, or just a few? Designate an area and set the boundaries.

Your class may choose to simply search for the biggest tree in the designated area. They may wish to find the biggest broadleaf and the biggest conifer. Students might learn to identify a particular tree species, perhaps their state tree, and hunt for this kind in the community. In all cases, students should be able to make the distinction between conifer and broadleaf trees and understand how to properly measure a tree.

Measuring Trees

Foresters have a special formula to measure trees. This formula includes the tree's height, circumference, and crown spread. A tree receives one point for every foot of height, one point for every inch of circumference (taken at 4 ½ feet), and one-fourth of a point for every foot of average crown spread.

Explain to the students that they are going to practice measuring trees before looking for a "Tree-mendous Tree" winner. Divide students into groups of three or four. Each group will need measuring tape, yardstick, and a pencil and paper to record their findings.

It may be helpful to assign roles to each student within a group. Group jobs include:

Recorder - records measurements and tallies points

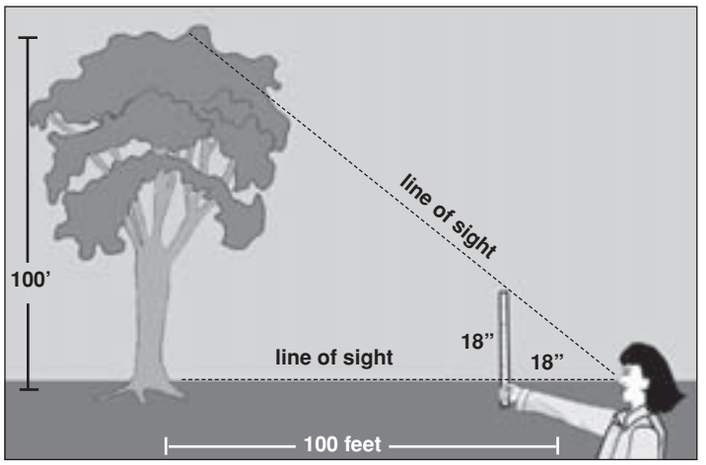
Investigator - takes the measurements

Manager - assists the investigator to make sure measurements are accurate and is responsible for the measuring tape and yard stick

Take students to a nearby area with enough trees to allow each team to measure a tree. Explain that they are measuring these trees for practice and later they will search for the "Tree-mendous Trees" in their community.

Students profit from learning how to actually identify a tree by its leaves, bark, shape, fruit, flowers, and buds through the use of a dichotomous key. A kid-friendly tree identification guide, *What Tree Is That?* is available from the Arbor Day Foundation if you wish to expand your tree identification study. Visit arborday.org to learn more.

Height



Example: If the distance from your eye to your fist is 18" make sure the distance from the top of your fist to the top of the ruler is also 18". Be sure to hold your fist directly out at eye level and keep the ruler straight up and down.

STEP 1 - Students should stand on level ground to take measurements.

STEP 2 - The student investigator extends his/her arm out straight so that the top of his/her fist is at eye level. Carefully using the yardstick, the manager makes sure the top of the investigator's fist is at eye level and then measures the distance from the investigator's fist to the investigator's eye. The recorder writes down this measurement.

STEP 3 - The investigator directly faces the tree to be measured holding the yardstick vertically in his/her extended fist so that the distance from the top of his/her fist to the top of the yardstick is the same eye-to-fist distance measured in the previous step. The manager checks the measurement then makes sure the investigator's arm is straight out, fist at eye level with the yardstick straight up and down.

STEP 4 - The investigator slowly (and carefully) walks backward away from the tree until he/she can see the base of the tree by looking over the top of the fist and the top of the tree by looking over the top of the yardstick.

STEP 5 - The manager measures the distance, in feet, from the investigator to the tree. This distance is the height of the tree.

STEP 6 - The recorder writes down the height measurement and gives the tree one point for every foot of height.

Crown Spread

The crown spread of a tree is the distance its branches spread away from its trunk. The crown spread is calculated by measuring the distance of the widest spread and the distance of the narrowest spread. These two figures are then added together and divided by two to get an average.

A tree receives ¼ (.25) of a point for every foot of the average crown spread. Follow these steps to measure crown spread: (Note: For a conifer with branches low to the ground stand next to, rather than under, the branch tip.)

STEP 1 - The investigator finds the branch that sticks out the farthest from the trunk and stands directly under or just next to its tip.

STEP 2 - The recorder goes to the opposite side of the tree and stands under or just next to the tip of the branch extending farthest out on that side.

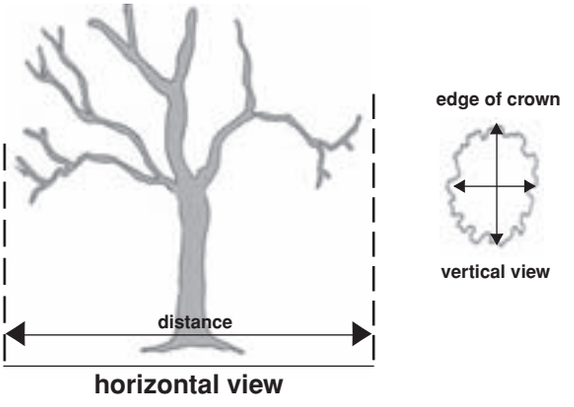
STEP 3 - The manager measures the distance in feet between the investigator and the recorder. The recorder records this number. This distance is the widest point of the crown spread.

STEP 4 - Next the investigator finds the branch nearest the trunk of the tree and stands directly under or just next to its tip.

STEP 5 - The recorder goes to the opposite side of the tree and stands under or just next to the tip of the branch closest to the trunk on that side.

STEP 6 - The manager measures the distance in feet between the investigator and the recorder. The recorder records this number. This distance is the narrowest point of the crown spread.

STEP 7 - The recorder adds the two distances together and divides by two to get an average crown spread. The recorder then awards the tree ¼ of a point for every foot of average crown spread or the students may divide the average crown spread by 4.



Circumference

The circumference of a tree is the distance around its trunk. The circumference is measured 4 ½ feet from the ground. If the tree forks or if there are branches at the 4 ½ foot mark, the circumference is measured at the narrowest point below the 4 ½ foot level. Follow these steps to measure circumference:

STEP 1 - The investigator holds one end of the tape against the tree trunk at a measured point 4 ½ feet above the ground.

STEP 2 - The manager wraps the tape around the trunk until it reaches the starting point.

STEP 3 - The investigator reads off the measurement in inches. This is the circumference of the tree.

STEP 4 - The recorder writes down the circumference and gives the tree one point for every inch of distance around the trunk.

Measuring Up a Winner

Before starting the "Tree-mendous Trees" contest:

- Review conifer and broadleaf distinctions.
- Make sure students understand how to correctly measure a tree.
- Inform the community of the project so people will not be surprised to see the kids in their yards.
- Ask for parental volunteers to accompany the students.
- Have students create a form for the student recorders to use in their record keeping. The form should include the formula for measuring tree size and room for students to describe the location of the tree. If measuring trees in neighborhood yards, the house address can be recorded. If measuring trees in parks, a brief description of each tree's location along with some distinguishing characteristics of each tree works well. In all cases, students should differentiate whether the tree is a conifer or broadleaf.
- Ensure safety – make sure students recognize poison ivy.

When you are ready to begin, give each group a recording sheet and the Measuring a Champ Guidelines form. This handout will help students, but you will still need to introduce and support them in the measurement process. Make sure they have something firm to write on and pencils to record their results. Check with each group manager to see that they have a tape measure and yard stick.

Establish an organized system for groups to explore the designated area or community. When students return to the classroom, have each group reporter report their findings to the class and compile results.

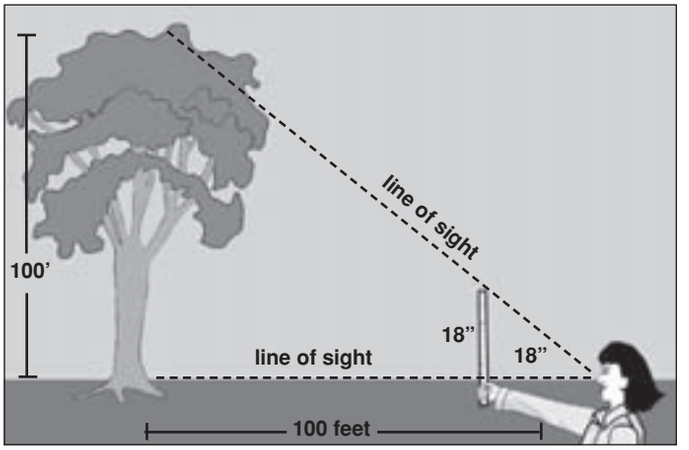
Have students put together a list of the community's biggest trees. Interested students may wish to do research to learn more about winning tree species and share their results with the class.

After determining the "Tree-mendous Trees" contest winner(s), your class may wish to present an award certificate to the owner of the tree if it is on private property. Or, make a presentation to the mayor or city council if the tree is on public property. Announce the tree winners on Arbor Day. Include a visit to the winning tree(s) as part of your school's Arbor Day celebration.

Authentic Assessment: Demonstration of proficiency in tree measurement skills.

MEASURING UP A CHAMP GUIDELINES

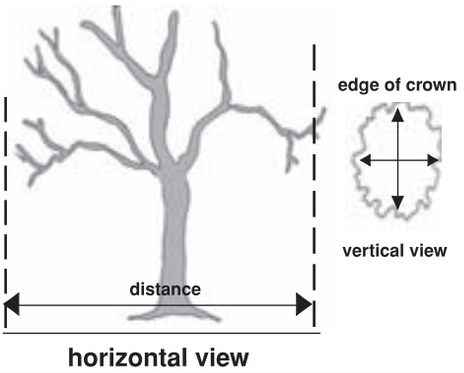
Height: The height of a tree is measured from the top of the tree to the ground. Follow these steps to measure tree height:



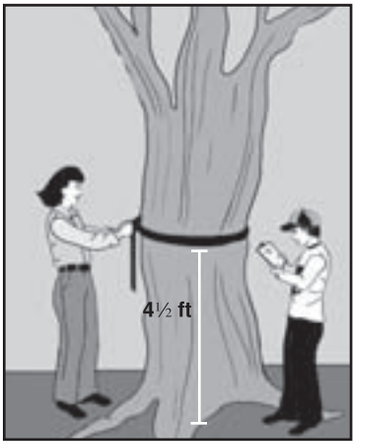
1. Team, stand on level ground to take measurements.
2. Investigator, extend your arm out straight so that the top of your fist is at eye level. Manager, make sure the top of the investigator's fist is at eye level and then measure the eye-to-fist distance. Recorder, write down that measurement.
3. Investigator, directly face the tree holding the yardstick vertically in your fist so that the distance from the top of your fist to the top of the yardstick is the same eye-to-fist distance measured in the previous step. Team members, help make sure the investigator's arm is straight out, fist at eye level with the yardstick straight up and down.
4. Investigator, walk slowly and carefully backwards away from the tree until you can see the base of the tree by looking over the top of your fist and the very top of the tree by looking over the top of the yardstick.
5. Manager, measure the distance, in feet, from the investigator to the tree. This distance is the height of the tree. Recorder, write down the height measurement. Give the tree one point for every foot of height.

Crown Spread: The crown spread of a tree is the distance its branches spread away from its trunk. The crown spread is calculated by measuring the distance of the widest spread and the distance of the narrowest spread. These two figures are then added together and divided by two to get an average. A tree receives 1/4 of a point for every foot of the average crown spread. Follow these steps to measure crown spread:

1. Investigator, find the branch that sticks out the farthest from the trunk and stand directly under or just next to its tip.
2. Recorder, go to the opposite side of the tree and stand under or just next to the tip of the branch extending farthest out on that side.
3. Manager, measure the distance in feet between the investigator and the recorder. Recorder, write down this number. This distance is the widest point of the crown spread.
4. Next, Investigator, find the branch nearest the trunk of the tree and stand directly under or just next to its tip.
5. Recorder, go to the opposite side of the tree and stand under or just next to the tip closest to the trunk on that side.
6. Manager, with tape measure, measure the distance in feet between the investigator and the recorder. Recorder, write down this number. This distance is the narrowest point of the crown spread. Recorder, add the two distances together and divide by two to get an average crown spread. Then award the tree 1/4 of a point for every foot of average crown spread.



Circumference: The circumference of a tree is the distance around its trunk. The circumference is measured 4 1/2 feet from the ground. If the tree forks or if there are branches at the 4 1/2 foot mark, the circumference is measured at the narrowest point below the 4 1/2 foot level. Follow these steps to measure circumference:



1. Investigator, hold one end of the tape against the tree trunk at a measured point 4 1/2 feet above the ground.
2. Manager, wrap the tape around the trunk until it reaches the starting point.
3. Investigator, read off the measurement in inches. This is the circumference of the tree.
4. Recorder, write down the circumference and give the tree one point for every inch.

TOTALS Height_____ Crown Spread_____ Circumference _____